Virtual issue on polymorphism

Linden, Anthony

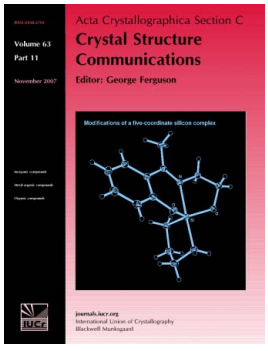
DOI: https://doi.org/10.1107/S0108270111046968

Acta Crystallographica Section C
Crystal Structure Communications
ISSN 0108-2701
Editor: **Anthony Linden**

Virtual issue on polymorphism

Anthony Linden

Acta Cryst. (2011). C**67**, e15



Acta Crystallographica Section C: Crystal Structure Communications specializes in the rapid dissemination of high-quality studies of crystal and molecular structures of interest in fields such as chemistry, biochemistry, mineralogy, pharmacology, physics and materials science. The numerical and text descriptions of each structure are submitted to the journal electronically as a Crystallographic Information File (CIF) and are checked and typeset automatically prior to peer review. The journal is well known for its high standards of structural reliability and presentation. *Section C* publishes approximately 1000 structures per year; readers have access to an archive that includes high-quality structural data for over 10000 compounds.

Acta Crystallographica Section C
Crystal Structure Communications
ISSN 0108-2701

Virtual issue on polymorphism

Anthony Linden

Institute of Organic Chemistry, University of Zurich, Winterthurerstrasse 190, CH-8057 Zürich, Switzerland
E-mail: alinden@oci.uzh.ch

Acta Crystallographica Section C is pleased to announce the publication of its first virtual issue. The issue is dedicated to the subject of polymorphism (http://journals.iucr.org/special_issues/2011/polymorphism/) and includes papers relating to this topic published in *Section C* between January 2010 and November 2011. In putting the issue together, the term polymorph has been taken to include materials that are pseudopolymorphs (solvates), solvatomorphs or referred to as having different phases or modifications. The latter terms are in more common usage with inorganic materials. Structure reports of cocrystals involving variations in nonsolvent components have not been included, but a future virtual issue on the topic of cocrystals is being planned.

The concept of virtual issues of *Section C* is a new initiative designed to make it easier for readers to find papers relevant to their field of interest, thus increasing the visibility and impact of those papers, and consequently the attractiveness of the journal to authors. The rapid publication style of the journal does not lend itself easily to the production of formal special issues for which long lead times or the holding over of relevant submissions is required. Nevertheless, online publishing readily facilitates the creation of virtual issues, which can be used to bring together and highlight papers on specific topics that have recently been published in the journal. The contents page of the virtual issue then provides suitable links to the original papers.

Polymorphism, particularly for molecular materials, was perhaps once considered a curiosity. In routine crystal structure determination, one frequently looked for the first good crystal one could find, determined its structure and then did not pursue the matter further because the nature of the chemical species had been established. Polymorphs were usually only found serendipitously if one happened to notice different crystal forms in a batch of crystals, or if different crystallization conditions were employed, possibly even at different times by different laboratories.

Nowadays, polymorphism has become a crucial issue for the pharmaceutical industry. Different polymorphs of a drug can have quite different properties in terms of solubility, bioavailability, shelf life, ease of production, and other physical properties. The unexpected appearance of a new polymorph during production of a drug has led to several famous examples affecting dosage or drug effectiveness, with potentially dire consequences. Therefore, during the development of new drugs in solid form, pharmaceutical companies now have to invest considerable effort to ensure that they are aware of all possible polymorphs before they can receive regulatory approval. In addition, because of the peculiarities of patenting laws, pharmaceutical companies want to protect their intellectual property by patenting as many polymorphs as possible, while competitors seek to bypass the patents by finding new polymorphs or pseudopolymorphs.

Developments in crystal structure prediction in recent years have also highlighted that hitherto unknown polymorphs with very favourable energy, even the thermodynamically lowest energy, may exist for some materials. Such prediction software has also aroused the keen interest of the pharmaceutical industry to help them in their quest to find all possible polymorphs of a formulation.

The editors of *Acta Crystallographica Section C* hope that readers find this virtual issue interesting and beneficial. The next virtual issue will be published in late 2012. Details will be announced on the journal's homepage at the beginning of 2012.

doi:10.1107/S0108270111046968